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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP  
2101 L STREET NW  
WASHINGTON, DC 20037-1526

EXAMINER

MONBLEAU, DAVIENNE N

ART UNIT PAPER NUMBER

2828

DATE MAILED: 02/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/672,050

Applicant(s)

BROUTIN ET AL.

Examiner

Davienne Monbleau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**


- 1) ☒ Responsive to communication(s) filed on 31 October 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

  
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**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The IDS filed on 11/18/02 has been acknowledged and a signed copy of the PTO-1449 is attached herein.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Fee (U.S. Patent No. 5,943,352). Fee discloses in Figure 1 a method of stabilizing a laser device comprising adjusting a tuning current (114) in response to output power (118) and adjusting a wavelength characteristic (104) in response to an optically filtered transmission fraction of said output power (118).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee (U.S. Patent No. 5,943,352) in view of Johnson (U.S. Patent No. 5,832,014). Regarding Claim 1, Fee discloses in Figure 1 a method of operating a laser device comprising using a first

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feedback loop to tune said laser in response to a sensed wavelength (120 – 110 – 104 – 112) and a second feedback loop to adjust a current applied to said laser in response to a sensed amplitude (120 – 132 – 128 – 114). Fee does not teach that said laser is a DBR. Johnson teaches in Figure 1 a tuning stabilized laser device comprising a DBR laser. It would have been obvious to one of ordinary skill in the art at the time of the invention that the tuning process in Fee may be applied to other types of lasers, such as the DBR laser in Johnson.

Regarding Claim 2, Fee discloses in Figure 1 a temperature regulation signal (116).

Regarding Claim 3, Fee teaches a third feedback loop (120 – 132 – 116), but does not teach that said third feedback loop adjusts a gain current applied to a gain section. Johnson teaches in Figure 1 a stabilized laser device comprising a DBR laser (12) with a gain section (14) and a tuning section (16). It would have been obvious to one of ordinary skill in the art at the time of the invention to tune the gain section of a laser, as taught by Johnson, to further stabilize the laser source.

Regarding Claim 4, Fee teaches in Figure 1 that a feedback loop may be in response to amplitude.

Regarding Claim 5, Fee teaches in Figure 1 that said feedback loops might operate simultaneously.

Regarding Claim 10, Johnson teaches in Figure 1 using a backface loop to compensate for aging, wherein said loop includes a backface monitor (20). (Also see abstract).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fee (U.S. Patent No. 5,943,352), as applied to Claim 1 above. Fee does not teach using a microprocessor to

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control the tuning steps. However, using a computer to control and monitor a laser device is standard in the art.

Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee (U.S. Patent No. 5,943,352) in view of Johnson (U.S. Patent No. 5,832,014), as applied to Claim 2 above, and further in view of Kuo et al. (U.S. Patent No. 6,222,861). Regarding Claim 6, Fee teaches in Figure 1 a third feedback loop (120 – 132 – 116), but does not teach that said third feedback loop operates an amplifier. Kuo et al. teach in Figure 1 a laser wavelength-controlling device comprising an amplifier (118). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a feedback loop to operate an amplifier associated with said laser, as taught by Kuo et al., to control the output power of the device.

Regarding Claim 7, it is obvious that tuning the amplifier would be in response to an output power, since producing a specific output power is its function.

Regarding Claim 8, Fee teaches in Figure 1 that said feedback loops might operate simultaneously.

Regarding Claim 9, determining transmission fraction data involves routine skill in the art.

Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bielas (U.S. Patent No. 6,359,918) in view of Deacon (U.S. Patent No. 6,341,189). Regarding Claim 11, Bielas teaches in the abstract a method of tuning a light source comprising having a look-up table (data memory) that indicates the amount of current to be provided to a light source to maintain a specific wavelength and applying that current to said light source. Bielas does not teach that said data is representative of mode-hopping values. Deacon teaches in column 2 line 65 to column 3

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line 7 the importance of tuning the modes to avoid mode-hopping behavior. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use data values corresponding to mode-hopping values in Bielas, to more accurately tune said laser device. Furthermore, the modulation current affects the frequency and hence the mode, so they are all interrelated.

Regarding Claim 15, Bielas teaches in the abstract a method of tuning the wavelength of a light source comprising having a look-up table (data memory) that indicates the amount of current to be provided to a light source to maintain a specific wavelength and applying that current to said light source. Bielas does not teach that said data is representative of mode-hopping values. Deacon teaches in column 2 line 6 to column 3 lines 7 the importance of tuning the modes to avoid mode-hopping behavior. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use data values corresponding to mode-hopping values in Bielas, to more accurately tune said laser device. Furthermore, the modulation current affects the frequency and hence the mode, so they are all interrelated.

Regarding Claims 12 and 17, Bielas teaches in Figure 3 adjusting the temperature of the light source in a separate feedback loop (120 – 52) and using a heater/cooler (44). It is known in the art that a TEC may be used.

Regarding Claims 13 and 16, determining the form of the data stored involves routine skill in the art.

Regarding Claim 14, having an additional tuning signal based on the look-up table is repetitious and involves routine skill in the art.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bielas (U.S. Patent No. 6,359,918) in view of Deacon (U.S. Patent No. 6,341,189), as applied to claim 15 above, and further in view of Johnson (U.S. Patent No. 5,832,014). Bielas does not teach monitoring the amplitude at the backface of said laser. Johnson teaches in Figure 1 using a backface loop to monitor the power. It would have been obvious to one of ordinary skill in the art at the time of the invention monitor the backface amplitude of said laser in Bielas, as taught by Johnson, to compensate for aging (see Johnson abstract).

***Response to Arguments***

Applicant's arguments filed 10/31/02 have been fully considered but they are not persuasive. The Applicant makes the following arguments:

- A. (re: Claim 1) Fee fails to disclose or suggest the recited method of operating a “distributed Bragg reflector” laser device.
- B. (re: Claim 19) Fee fails to disclose simultaneous adjustments.
- C. (re: Claims 11 and 15) Bielas and Deacon fail to suggest “providing data in a memory representative of [plural] mode-hopping values”.

Regarding argument A, this argument is moot in view of the new rejection.

Regarding argument B, Fee teaches in Figure 1 two feedback loops, which may operate simultaneously. The loops are independent of one another. A first loop adjusts a tuning current (114) in response to output power (118) of the laser (106). A second loop adjusts a wavelength characteristic (i.e. frequency) in response to an optically filtered transmission fraction of the output power (118). The output signal (118) is divided into two branches to create a feed-back loop (120), which is then subdivided into 2 sections for the first and second loops.

Regarding argument C, it is known in the art that avoiding mode-hopping behaviors results in optimum laser performance. Tuning lasers to achieve this is also known in the art. Bielas teaches that one way to assist in the tuning is to use a look-up table (data memory) to choose the appropriate value. For example, Bielas teaches in Figure sending a signal representative of the laser temperature to a look-up table to determine the appropriate voltage that is needed to control the current of the laser diode. It correlates the diode temperature and the laser current. Combining Bielas and Deacon merely shows that the look-up table method in Bielas may be altered for different parameters, such as mode-hopping values for a laser.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davienne Monbleau whose telephone number is 703-306-5803. The examiner can normally be reached on Mon-Fri 8:00 am to 4:30 pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

*Danielle Monbleau*

DNM  
February 3, 2003

*Paul Ip*  
PAUL IP  
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